WHAT IS CLAIMED IS:

1. A method to estimate the impulse response h of a propagation channel in a system comprising at least one or more sensors, comprising at least one step for estimating the statistics of the additive noise resulting from the interference and from the thermal noise on the basis of the statistics of the received signal.

2. A method according to claim 1, comprising a step for estimating the covariance matrix of the noise from the empirical covariance matrix of the observations Rx and the number of pilot chips of a learning sequence transmitted with the signal, the noise matrix being expressed in the form

$$\frac{1}{N_0 P}\hat{\mathbf{R}}_x$$

3. A method according to one of the claims 1 and 2 comprising a step for the estimation of the covariance matrix of the channel estimated in the form:

$$\Gamma = \frac{1}{M}\sum_{m=1}^{M}\hat{\mathbf{H}}_m\hat{\mathbf{H}}_m^H - \frac{1}{N_0 P}\hat{\mathbf{R}}_x$$

4. A method according to one of the claims 1 to 3 wherein the estimation of the impulse response of the propagation channel uses a Wiener method and wherein the impulse response of the channel is equal to :

$$\tilde{\mathbf{H}}_m = [\frac{1}{M}\sum_{m=1}^{M}\hat{\mathbf{H}}_m\hat{\mathbf{H}}_m^H - \frac{1}{N_0 P}\hat{\mathbf{R}}_x]\Delta^{-1}\hat{\mathbf{H}}_m$$

5. A method according to one of the claims 1 to 4, comprising a step where the channel space is parametrized by means of an orthonormal base constituted by a given number of vectors u_1, u_2,...u_p.

6. A method according to claim 5 wherein the vectors u_1, u_2, ..., u_p correspond to the eigen vectors associated with the greatest eigenvalues of the estimated matrix Γ.

7. A method according to claim 5 wherein the vectors u_1, u_2, ..., u_p are canonical vectors associated with the positions of the greatest values of the diagonal of the matrix Γ.

8. A method according to claim 5 wherein the vectors u_1, u_2, ..., u_p are formed out of sampled versions of the shaping filter, shifted by the propagation delays of the channel, estimated beforehand and standardized.

9. A method according to one of the claims 1 to 8 to estimate the impulse response of a propagation channel in the UMTS field for uplinks and/or downlinks between a base station and one or more mobile units.

10. A transmission and/or reception device adapted to estimating the impulse response of a propagation channel, the device comprising one or more sensors for the reception of a signal, a means to sample the received signal, a means adapted to estimating the noise from the statistics of the channel.

11. A receiver according to claim 10 comprising a means adapted to estimating the noise from the empirical covariance matrix of the observations $\hat{\mathbf{R}}_x$ and from the number of pilot chips of a learning signal transmitted with the signal, the matrix of the noise being expressed in the form:

$$\frac{1}{N_0 P}\hat{\mathbf{R}}_x$$

12. A receiver according to claim 10 comprising a means adapted to determining the impulse response of the channel in the form:

$$\bar{\mathbf{H}}_m = [\ \frac{1}{M}\sum_{m=1}^{M}\hat{\mathbf{H}}_m\hat{\mathbf{H}}_m^H - \frac{1}{N_0 P}\hat{\mathbf{R}}_x]\Delta^{-1}\hat{\mathbf{H}}_m$$

13. A receiver according to one of the claims 11 and 12 applied in the field of UMTS.